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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/733,770

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Kun-Hee Suh

SUH 0019 US

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EXAMINER

KEMMERLE III, RUSSELL J

ART UNIT

PAPER NUMBER

1791

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/733,770	Applicant(s) SUH, KUN-HEE	
	Examiner RUSSELL J. KEMMERLE III	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

In light of the current amendments to the claims the previous rejection of claims 3 and 4 under 35 USC §112 are withdrawn.

Claim 6 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 6 as currently amended recites molding at “a pressure of under 10 kg/cm²”, however, the disclosure as originally filed only contains teachings to the pressing occurring at 10 kg/cm² (not below that pressure, for example, page 11 lines 8-13). For the purpose of this Office Action it was assumed that the pressure in claim 6 was intended to read 10 kg/cm², since this is what the applicant pointed to as support for the newly added claim and that is what applicant says it should read in the remarks/arguments filed with the previous response.

Claim Rejections - 35 USC § 102/103

Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over Billwiller (US Patent 0,831,321).

Billwiller discloses an insulating block formed by creating an aqueous paste of water, magnesium oxide (MgO) and vegetable fiber, which is pressed in order to obtain

Art Unit: 1791

the desired shape of the block (Claim 6, Col 1 lines 24-25). Billwiller discloses the method of making this product, and never mentions the addition of magnesium chloride, it is therefore assumed that the mixture is magnesium chloride free.

It should be noted, that claim 5 is a product-by-process claims, and as such, determination of patentability is based on the product formed, and is not limited to products formed by the process described. See *In re Thorpe*, 777 F.2d 695, 698; 227 USPQ 964, 966 (Fed. Cir. 1985) (“[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” (Citations omitted))

The product of Billwiller thus produced appears to be either identical with or only slightly different than the product of claim 5. Therefore, claim 5 is found to be anticipated by, or in the alternative, obvious over Billwiller.

Claim Rejections - 35 USC § 103

Claims 1, 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Billwiller in view of Stalego (US Patent 4,312,674).

Billwiller is relied upon as discussed above.

Billwiller does not disclose the method of creating an insulating piece where the aqueous paste is formed into the final product by applying pressure in a mold that has been heated.

Art Unit: 1791

Stalego discloses a method of making a magnesium oxide cement article by mixing magnesium oxide cement forming materials and water, then molding the materials under heat and pressure to form the final piece (claim 43). Stalego specifically discloses that the pressing occurs at 210°F (about 99°C) and 400 pounds per square inch (psi) (about 38 kg/cm²) for 4 minutes (Col 3 lines 1-4).

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have modified the method of forming an insulating block of Billwiller by using the heated mold of Stalego. This would have been obvious because Stalego discloses that by doing so a finished product is formed much quicker.

While Stalego does not specifically state that the mold is preheated, it would have been obvious to one of ordinary skill in the art that when practicing the invention of Stalego the mold should be preheated prior to pouring in the slurry for molding. This would have been obvious because the molding time is so short (4 minutes) that if the mold were not heated until molding had begun there would not be enough time at the elevated temperature to realize the full benefits of using a heated mold.

Referring specifically to claim 6, Stalego discloses a broad range of temperatures which would cover heating the mold at 100°C. While Stalego appears to only disclose molding at a pressure of about 28 kg/cm², it would have been obvious to one of ordinary skill that the molding pressure would greatly affect the properties of the finished piece (such as density and porosity) as well as how long it took to mold. Thus, absent a showing of unexpected results, it would have been obvious to adjust the molding pressure to 10 or 100 kg/cm² in order to achieve the desired results.

Art Unit: 1791

“[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to be prima facie obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%.); See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Billwiller in view of Suh (4,548,773).

Billwiller is relied upon as discussed above.

Billwiller does not disclose the method of creating an insulating piece where the aqueous paste is formed into the final product by injection molding and heating the injection mold.

Suh discloses a device that can be used for injection molding a ceramic material to create a desired final shape where the mold includes heating means to increase the temperature of the mold while the ceramic article is being formed (Col 1, lines 7-17, Col 3 lines 56-58).

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have combined the method disclosed by Billwiller of creating an aqueous paste of water, magnesium oxide and vegetable fiber with the method

Art Unit: 1791

taught by Suh of injection molding a ceramic material in a mold containing means for heating the mold since Suh discloses that this is an effective means for forming a ceramic article.

While Billwiller and Suh do not disclose that the molding takes place for 2 to 5 minutes, this would have been obvious to one of ordinary skill in the art when taking the prior art as a whole. This is because one of ordinary skill in the art would recognize when the hardening in the mold was completed and would be motivated to stop the molding at that time in order to avoid the costs of continuing the molding step unnecessarily. Based on the Applicant's amended claims, it appears that injection molding of a magnesium oxide containing compound into a heated mold (such as by the combination of Billwiller and Suh) results in a hardened finished product in 2 to 5 minutes.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Billwiller in view of Takahasi (4,764,102).

Billwiller is relied upon as discussed above.

Billwiller does not disclose the method of creating an insulating piece where the aqueous paste is formed into the final product by extruding the paste and passing it through a heating device positioned at the outlet of the extruder.

Takahashi discloses a method of forming a ceramic article where a ceramic material is extruded to form the desired shaped, and the extruded ceramic article is passed through a dryer and a firing furnace positioned at the outlet of the extruder (Abstract).

Art Unit: 1791

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have combined the method disclosed by Billwiller of creating an aqueous paste of water, magnesium oxide and vegetable fiber with the method taught by Takahashi by extruding the aqueous paste and passing it through a heating device positioned at the outlet of the extruder since Takahashi discloses that this is an effective way of forming a ceramic article.

While Billwiller and Takahashi do not disclose that the heating takes place for 2 to 5 minutes, this would have been obvious to one of ordinary skill in the art when taking the prior art as a whole. This is because one of ordinary skill in the art would recognize when the hardening in the heating device was completed and would be motivated to stop the heating at that time in order to avoid the costs of continuing the heating step unnecessarily. Based on the Applicant's amended claims, it appears that an extruded body of a magnesium oxide containing compound placed into a heating device (such as by the combination of Billwiller and Takahashi) results in a hardened finished product in 2 to 5 minutes.

Response to Arguments

Applicant's arguments filed 17 July 2008 have been fully considered but they are not persuasive.

Applicant first argues with respect that the product of current claim 5 would be different from that of the product made by Billwiller which uses mineral oil, which is not present in the current claim. However, claim 5 is an open ended claim (using the

Art Unit: 1791

transitional phrase “comprising the steps of”) and therefore open to the inclusion of additional steps or ingredients, including mineral oil.

Applicant next argues that Stalego fails to disclose any type of filler beyond amorphous silica or fiber, and thus the rejection of claims 1, 2 and 6 under 35 USC §102(b) fails on that point. However, claims 1, 2 and 6 are not rejected under 35 USC §102(b), but instead only under 35 USC §103(a) in combination with Billwiller.

Applicant next argues that Stalego fails to disclose the vegetable powder, vegetable fiber, mineral powder or mineral fiber of claim 1. However it has never been argued that these limitations are taught by Stalego, instead these limitations are taught by the material of Billwiller, which it is argued would then be used in the process of Stalego.

Applicant argues that Billwiller and Stalego could not be combined because Billwiller teaches pressure must be applied for a long time (12-16 hours), and Stalego teaches the use of magnesium chloride to overcome the problem of the composition to bind itself to other elements in the insulating materials made by the process. However, Applicant has failed to point out how these two positions would make the method of forming a MgO based material as taught by Stalego incompatible with the MgO based material of Billwiller.

Applicant next argues that there is no showing why one of ordinary skill in the art would modify the process of making solid blocks (building materials) by using the teachings of a reference describing a method of making ceramic articles. However, there are both directed to methods of making a ceramic article, specifically one based

Art Unit: 1791

on MgO. This would be enough for one of ordinary skill in the art to be motivated to combine the teachings.

Applicant next argues that the rejection of claim 3 fails to teach how an injection mold or extruder could be maintained for 12-16 hours and still be functional to provide the necessary amount of product, and still make sufficient product for commercial processing. As started in the previous Office action, commercial viability is not a consideration in the determination of obviousness, only technical feasibility.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RUSSELL J. KEMMERLE III whose telephone number is (571)272-6509. The examiner can normally be reached on Monday through Thursday, 7:00-5:00 EST.

Art Unit: 1791

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art
Unit 1791

/R. J. K./
Examiner, Art Unit 1791